



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,677	06/25/2001	SushilKumar Gangadharan	112056-0009	9968

24267 7590 12/08/2005  
CESARI AND MCKENNA, LLP  
88 BLACK FALCON AVENUE  
BOSTON, MA 02210

EXAMINER

NGUYEN, DUSTIN

ART UNIT PAPER NUMBER

2154

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/888,677	Applicant(s) GANGADHARAN, SUSHILKUMAR	
	Examiner Dustin Nguyen	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-33 are presented for examination.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/22/2005 has been entered.

#### ***Response to Arguments***

3. Applicant's arguments filed 09/22/2005 have been fully considered but they are not persuasive.
4. In response to applicant's arguments, the recitation "uniformly distributing data transmitted by a server over a plurality of underlying links" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness

Art Unit: 2154

but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

5. As per remarks, Applicants' argued that (1) Boucher does not teach or suggest associating each fragment to an underlying link of the aggregate on the basis of an Internet Protocol (IP) identifier (ID) of each datagram.

6. As to point (1), it is rejected for similar reasons as mentioned in the previous Office Action. Furthermore, Boucher discloses the above limitation [ i.e. routing of datagram using IP destination address through interfaces ] [ paragraphs 0109, 0326 and 0354 ].

7. As per remarks, Applicants' argued that (2) Boucher does not teach or suggest transmitting the fragment over its associated underlying link".

8. As to point (2), Boucher discloses transmit interfaces for transmitting segments [ Figure 13; and paragraphs 0072-0074 and 0561 ].

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2154

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. Claims 1, 9-11, 16, 21, 22, 27-33 are rejected under U.S.C. 102(e) as being anticipated by Boucher et al. (hereinafter Boucher) US 2001/0027496.

11. As per claim 1, Boucher teaches a method for uniformly distributing data transmitted by a server over a plurality of underlying links of an aggregate within a computer network comprising:

defining a unit of data as a datagram (Paragraph [0109]);

apportioning each datagram into at least one fragment at the server (Paragraphs [0067], [0070], [0110] and [0112]);

associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram and a number of active links of the aggregate (Paragraphs [0052], [0057-0058], [0073], [0109], [0332] and [0502]; and

transmitting the fragment over its associated underlying link from the server to the computer network (Paragraphs [0008], [0048],[0049] and [0065]).

12. As per claim 9, Boucher teaches the method of claim 1, further comprising:

loading at least one data buffer of the server with the at least one fragment (Paragraph [0071]);

fetching the fragment from the data buffer (Paragraph [0071]); and

loading at least one queue of the server with the fragment, the queue associated with the underlying link (Paragraphs [0042], [0053] and [0083]).

13. As per claim 10, Boucher teaches a system adapted to uniformly distributing data over a plurality of underlying links of an aggregate within a computer network, comprising:

a processor (Paragraph [0049]);

a memory coupled to the processor and having locations addressable by the processor (Paragraph [0049]);

an operating system resident in the memory locations and executed by the processor, the operating system configured to implement a modified load balancing technique that defines a unit of data as a datagram, the operating system comprising an Internet Protocol layer (IP) that apportions the datagram into at least one fragment, the operating system further comprising a virtual interface process that associates the fragment to an underlying link of the aggregate on the basis of an IP identifier (ID) of the datagram and a number of active links of the aggregate (Paragraphs [0010], [0011], [0109], [0112], [0276] and [0462]); and

at least one network adapter coupled to the memory and processor that cooperates with a network driver of the operating system to transmit the fragment over the associated underlying link to the computer network (Paragraphs [0048], [0049], [0276] and [0462]).

14. Claims 11 and 16 do not teach or define any new limitations above claim 1 and therefore is rejected for similar reasons.

15. As per claim 21, it is rejected for similar reasons as stated above in claim 1. Furthermore, Boucher discloses a round robin policy based [ paragraph 0561 ].

16. As per claim 22, Boucher discloses the step of associating is further based, at least in part, on a number of network links in the plurality of links [ i.e. interfaces or physical transmit lines ] [ paragraph 0561 ].

17. As per claim 27, it is rejected for similar reasons as stated above in claim 10.

18. As per claims 28 and 29, they are rejected for similar reasons as stated above in claim 21.

19. As per claim 30, it is rejected for similar reasons as stated above in claim 1. Furthermore, Boucher discloses transmitting all of the one ore more fragments associated with the IP ID over the network link [ i.e. send the completed packets on the network ] [ paragraph 0070 ].

Art Unit: 2154

20. As per claim 31, it is rejected for similar reasons as stated above in claim 21.

21. As per claims 32 and 33, they are rejected for similar reasons as stated above in claims 10 and 21.

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 2, 3, 12, 13, 17, 18, 23 and 24 are rejected under U.S.C. 103(a) as being unpatentable over Boucher et al. (hereinafter Boucher) US 2001/0027496, in view of Takagi, Masahiro (hereinafter Takagi) US 2001/0036154.

24. As per claim 2, Boucher does not explicitly teach the method of claim 1 wherein the step of associating comprises the step of producing a result representing a remainder upon dividing the IP ID by the number of active links.

25. Takagi teaches the method of claim 1 wherein the step of associating comprises the step of producing a result representing a remainder upon dividing the IP ID by the number of active links (Paragraph [0058]).



Art Unit: 2154

26. It would have been obvious to one of ordinary skill in this art at the time of invention was made to combine the teaching of Boucher and Takagi because they both deal with transmitting a datagram over a network and associating each fragment to an active link accordingly. The teaching of Takagi is to divide the TCP/IP packet into a plurality of link layer frames, which is a representation of the number of active links available. Takagi discloses the frame formation is for the non-transmitted packets of the TCP/IP connection, which is viewed as the remainder. Furthermore, the teaching of Takagi to produce a result representing a remainder upon dividing the IP ID by the number of active links would improve the functionality of Boucher's method by allowing for each datagram fragment to be transferred simultaneously and individually along distinct underlying links.

27. As per claim 3, Boucher teaches the method of claim 2 wherein the step of associating further comprises:

calculating the IP ID of each datagram in a sequential manner (Paragraphs [0091],[0109] and [0564]); and

rotating the fragments of each datagram among all the underlying links to thereby ensure that all fragments having the same IP ID are provided to the same physical link of the aggregate (Paragraphs [0005] and [0561]).

28. Claims 12 and 17 do not teach or define any new limitations above claim 2 and therefore is rejected for similar reasons.

Art Unit: 2154

29. Claim 13 and 18 do not teach or define any new limitations above claim 3 and therefore is rejected for similar reasons.

30. As per claims 23 and 24, they are rejected for similar reasons as stated above in claims 2 and 3.

31. Claims 4, 14, 19, 25 and 26 are rejected under U.S.C. 103(a) as being unpatentable over Boucher et al. (hereinafter Boucher) US 2001/0027496 , in view of Narad et al. (hereinafter Narad) US 6,157,955.

32. As per claim 4, Boucher does not explicitly teach the method of claim 1 wherein the step of associating comprising:

logically combining the IP ID with a predetermined mask to produce a quantity;

right shifting the quantity a predetermined number of places; and

establishing a threshold at which a group of data is forwarded to each underlying link of the aggregate.

33. Narad teaches the method of claim 1 wherein the step of associating comprises:

logically combining the IP ID with a predetermined mask to produce a quantity (Col. 37, lines 2-6; Col. 91, lines 51-56);

right shifting the quantity a predetermined number of places (Col. 42, lines 42-48); and

establishing a threshold at which a group of data is forwarded to each underlying link of the aggregate (Col. 6, lines 56-62; Col. 8, lines 21-29).

23. It would have been obvious to one of ordinary skill in the art at the time of invention was made to combine the teaching of Boucher and Narad because they both deal with processing data in-order to transmit information through a network of communication links. Furthermore, the teaching of Narad to combine the IP ID with a predetermined mask, then to right shift the combined value a predetermined number of places while establishing a threshold at which a group of data is forwarded to each underlying link accelerates the association of a datagram and increases efficiency with the system Boucher discloses.

34. Claims 14 and 19 do not teach or define any new limitations above claim 4 and therefore is rejected for similar reasons.

35. As per claim 25, it is rejected for similar reasons as stated above in claim 4.

36. As per claim 26, it is rejected for similar reasons as stated above in claim 2.

37. Claims 5, 15 and 20 are rejected under U.S.C. 103(a) as being unpatentable over Boucher in view of Takagi as applied to claims 2, 12 and 17 above, and in further view of Narad.

Art Unit: 2154

38. As per claim 5, Takagi teaches the method of claim 4 wherein the step of associating comprises the step of producing a result representing a remainder upon dividing Internet Protocol by the number of active links (Paragraph [0058]).

39. Takagi does not teach the step of dividing the right shifted logically combined IP ID and predetermined mask by the number of active links.

40. Narad teaches a method comprising:

a combined quantity of IP ID and a predetermined mask (Col. 37, lines 2-6; Col. 91, lines 51-56); and

right shifting the combined quantity a predetermined number of places (Col. 42, lines 42-48).

41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Boucher, Takagi and Narad because they each discuss methods process a datagram or packet in-order to distribute the data over a network through a plurality of links. Furthermore, the teaching of Narad to combine the quantity of the right shifted IP ID and predetermined mask in connection with Takagi's teaching to produce a result by dividing the combined quantity by the number of links allows for data to be transmitted more efficiently and uniformly through grouped underlying links within a computer network.

42. Claims 15 and 20 do not teach or define any new limitations above claim 5 and therefore is rejected for similar reasons.

Art Unit: 2154

43. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Takagi and Narad, in view of 'Official Notice'.

44. As per claim 6, Boucher does not explicitly teach the method of claim 5.

45. Narad teaches a predetermined mask in association with Internet Protocol and a predetermined number of right shifted places (Col. 37, lines 2-6; Col. 91, lines 51-56; Col. 42, lines 42-48).

46. Boucher and Narad do not teach the method of claim 5 wherein the IP ID is a 16-bit value, the predetermined mask is 0xFF80 and predetermined number of right shifted places is 7, and wherein the group of data comprises 128 IP IDs. However 'Official Notice' is taken by the Examiner that Internet protocol identification (IP ID) protocol is well known. It would have been obvious to one of ordinary skill in the art to incorporate Ipv6 standards for the 16-bit value of the IP ID. It would be obvious to arbitrarily set the predetermined mask as 0xFF80 because this would justify a standard mask for data transmittal. Also, it would have been obvious to combine the teaching of Narad who discloses a predetermined number of right shifted places to arbitrarily set the number of places to 7. From the number of shifted places, it would be obvious the data comprises of 128 IP IDs where in binary form, 2 to the power of 7, comprises of 128 possibilities, because doing so would increase ID possibilities and improve data transfer efficiency.

47. Claim 7 does not teach or define any new limitations above claim 6 and therefore is rejected for similar reasons.

Art Unit: 2154

48. As per claim 8, Narad does not explicitly teach a method of claim 7 wherein each datagram comprises up to 23 fragments.

49. Narad teaches that each IP layer datagram consists of a sequence of IP fragments.

‘Official Notice’ is taken by the Examiner that User Datagram Protocol (UDP) is well known. It would be obvious to one skilled in the art to arbitrarily set the number of fragments a datagram can be broken into to 23 because this would justify a maximum number fragments to be transmitted over the network of links.

50. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 U.S.C 133, M.P.E.P 710.02, 710.02(b)).

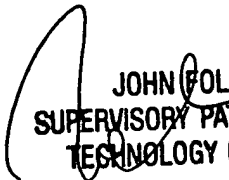
### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Nguyen whose telephone number is 571-272-3971. The examiner can normally be reached on Monday - Friday 8:30 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3970.

Art Unit: 2154

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JOHN FOLLANSBEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100